

Accessories

Parker Autoclave Engineers offers a complete selection of accessories to complete your system requirements.

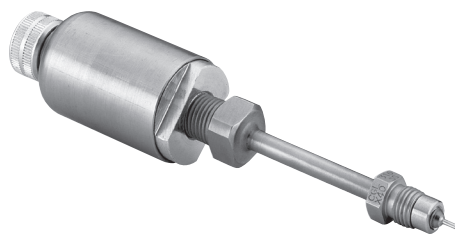
Components such as thermocouples and thermowells are used for monitoring and controlling temperatures in systems with operating pressures up to 60,000 psi (4137 bar).

Safety head assemblies are used to protect systems and pressure vessels from over-pressure conditions. Rupture discs are available in various pressure ranges and material options suitable for the application.

Pressure gauges are used to monitor and control pressure. Pressure gauges are available in two sizes, 4-1/2" and 6" (114.3 mm and 152.4 mm), and ranges from 0 to 80,000 psi (0 to 5515 bar). Optional electrical contact faces for pressure control are used to set high and low limits. Gauges are standard panel mount or can be flush mounted with an optional flush mount kit.

Gauge/instrument snubbers provide superior protection without compromising instrument accuracy or reaction time. Available with male and female connections in 1/4" and 3/8" sizes.

Accessories are also available as specials or non-standard items. Contact your local sales representative for more information.



www.autoclave.com

Accessories - Pencil-type Thermocouples

Pressures to 15,000 psi (1034 bar)

Thermocouples provide reliable temperature measurement within a system.

The design permits installation of the element in direct contact with the fluid stream, thereby providing reliable temperature measurement. The quick-connector affords system flexibility. The thermocouple tip has a grounded-type junction.

Materials

Precision-molded plastic connectors have heavy duty, spring-loaded jack inserts for positive contact. The sheath is type 316 stainless steel with 316 SS ferrule and gland. We offer a choice of iron constantan (J) or chromel-alumel (K) type elements (please specify when ordering). **Basic assembly includes 1/8" Parker Autoclave Engineers Speedbite connection with adapters for other connection sizes.**

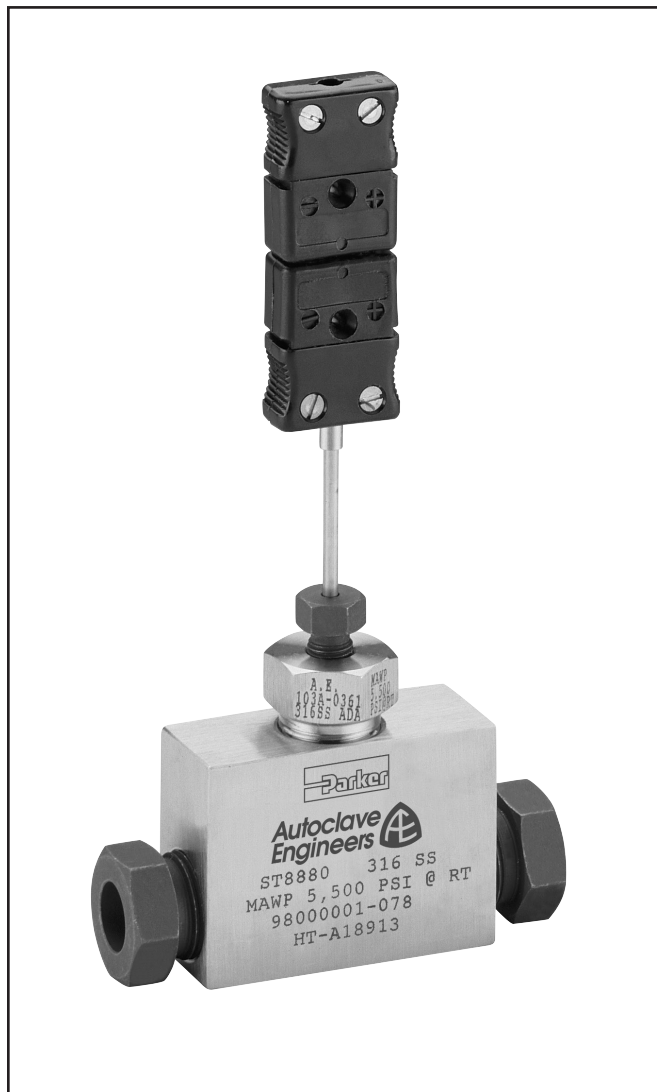
Pressure/Temperature Ratings

Ratings to 15,000 psi (1034 bar) maximum working pressure. Temperature rating based on connection style. Low pressure Speedbite connection not recommended below -100°F (-73°C) or above 650°F (343°C)

Ordering Information

Catalog order numbers in the table refer to the complete assembly. Add suffix "J" for iron constantan element or "K" for chromel-alumel. To order a basic thermocouple with plug/jack assembly and connection (**without through or angle block**), change last digit in order number to "0" and specify sheath length if different from standard 3.62" (91.94 mm) length.

Ordering examples: TP4400K 6" (152.4 mm) denotes basic thermocouple to fit into a 1/4" Parker Autoclave Engineers SpeedBite connection with chromel-alumel element and 6" (152.4 mm) sheath. TP 4401K denotes the above unit complete with through-type block and standard 3.62" (91.94 mm) sheath.



Thermocouple Specification Table

Calibration Type	Type of Thermocouple	Temperature Range	Comments
J	Iron (+) Constantan (-)	32 - 1400°F (0 - 760°C)	Reducing atmosphere recommended. Iron leg subject to oxidation to elevated temperatures- use larger gauge to compensate.
K	Chromel (+) Alumel (-)	-328 - 2300°F (-200 - 1260°C)	Well suited for oxidizing atmosphere. Most commonly used calibration type.

Accessories - Pencil-type Thermocouples

Catalog Number	Fits Connection Type	Tubing Size Inches (mm)	Dimensions - inches (mm)						Block Thickness	Fitting Pattern
			A	B	C	D	E	H		

Through-Type

*TP2201	W125	1/8	1.38	0.69	0.31	3.62	1.00	7.18	0.50	See Figure 1
		(3.18)	(35.05)	(17.53)	(7.87)	(91.95)	(25.40)	(182.37)	(12.70)	
TP4401	SW250	1/4	1.75	0.88	0.44	3.62	1.19	7.25	0.62	
		(6.35)	(44.45)	(22.35)	(11.18)	(91.95)	(30.23)	(184.15)	(15.75)	
TP6601	SW375	3/8	2.00	1.00	0.53	3.62	1.38	7.31	0.75	
		(9.52)	(50.80)	(25.40)	(13.46)	(91.95)	(35.05)	(185.67)	(19.05)	
TP8801	SW500	1/2	2.50	1.25	0.53	3.62	1.75	7.44	1.00	
		(12.70)	(63.50)	(31.75)	(13.46)	(91.95)	(44.45)	(188.98)	(25.40)	

Angle-Type

*TP2202	W125	1/8	1.00	0.75	0.31	3.62	1.38	7.62	0.50	See Figure 2
		(3.18)	(25.40)	(19.05)	(7.87)	(91.95)	(35.05)	(193.55)	(12.70)	
TP4402	SW250	1/4	1.19	0.88	0.44	3.62	1.75	7.81	0.62	
		(6.35)	(30.23)	(22.35)	(11.18)	(91.95)	(44.45)	(198.37)	(15.75)	
TP6602	SW375	3/8	1.38	1.00	0.53	3.62	2.00	7.94	0.75	
		(9.52)	(35.05)	(25.40)	(13.46)	(91.95)	(50.80)	(201.68)	(19.05)	
TP8802	SW500	1/2	1.75	1.25	0.53	3.62	2.50	8.19	1.00	
		(12.70)	(44.45)	(31.75)	(13.46)	(91.95)	(63.50)	(208.03)	(25.40)	

Note:

All thermocouples are furnished complete with connection components unless otherwise specified.

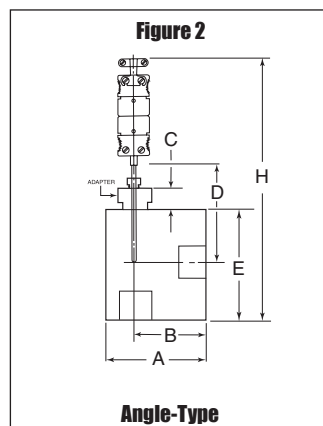
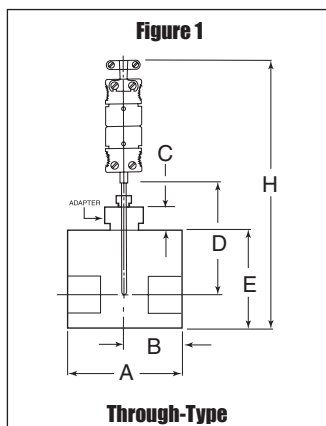
*Adapter not required.

Maximum pressure rating is based on the lowest rating of any component.

Actual working pressure may be determined by tubing pressure rating, if lower.

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Note:

Tee or elbow is included in standard catalog number.

Adapter not required for 1/8" Tees.

Accessories - Sheath-type Thermocouples

Pressures to 60,000 psi (4137 bar)

Thermocouples provide reliable temperature measurement within a fluid system.

Similar to low pressure thermocouples, this design also permits direct temperature monitoring at any point in a fluid system. The sheath type thermocouple features grounded junction and rapid response - 100 milliseconds or less at 63.3% of a step change.

Temperature Rating

Rating to 2,300°F (1260°C) at tip of thermocouple. (Refer to adjacent Pressure/Temperature chart for elevated temperatures.) Minimum operating temperature -328°F (-200°C)

Sheath Length

Differs for each size connection for optimum tip contact with fluid stream. Sheath diameter is 1/16".

Materials

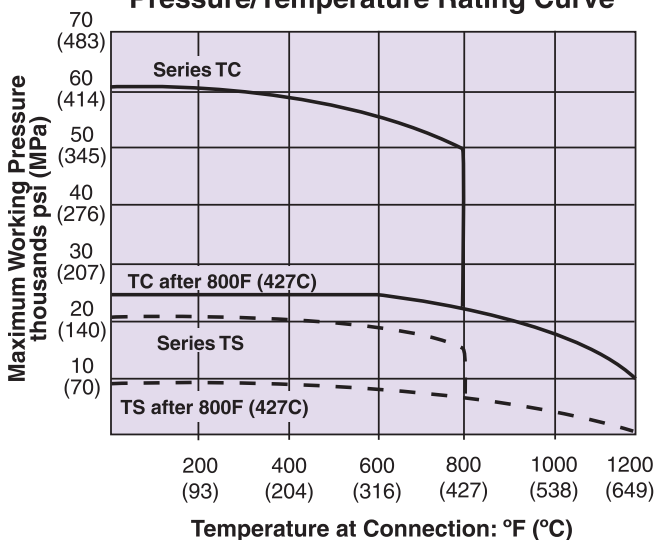
Bodies are 15-5PH stainless steel. 316 SS sheath brazed into body with gold-nickel alloy brazing material. An aluminum terminal housing is threaded into the body for ready access to terminals. An o-ring seal provides moisture protection.

Ordering Information

To order thermocouples for use in standard Parker Autoclave Engineers tees or crosses, use order numbers listed in table (**fittings not included as standard**). For custom length sheaths, to extend through a vessel wall or cover, calculate sheath length as follows:

1. Add vessel wall or cover thickness to the distance the sheath will extend into vessel.
2. When using a basic 1/4" Autoclave connection, subtract dimension "M" for proper sheath length to order.
3. For all other connection sizes, add dimension "N" to measurement obtained in step 1.
4. Order a custom length sheath by adding desired length in inches as suffix to order number.
5. 316 SS body material

Pressure/Temperature Rating Curve



Standard collar and gland are cold worked 316 SS for use up to 1200°F (649°C). When cold worked 316 SS collar and gland are used, the physical properties are permanently altered after use above 800°F (427°C).

Note:

Minimum operating temperature with 15-5 PH body is 0°F (-17.8°C).

Minimum operating temperature with 316 SS body is -328°F (-200°C).

CAUTION: While testing has shown O-rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling, and age of the O-ring. FREQUENT INSPECTION SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.

CAUTION: See appropriate pressure section in reference to proper selection of tubing.

Accessories - Sheath-type Thermocouples

Catalog Number	Fits Connection Type	Tubing Size Inches (mm)	Element Type	Dimensions - inches (mm)				Fitting Pattern
				L	M	N	H	

Series TS 20,000 psi (1379 bar)

TSJ4	SF250CX	1/4 (3.18)	iron constantan	0.28 (7.11)	0.50 (12.70)		5.78 (146.81)	See Figure 1
TSK4			chromel-alumel					
TSJ6	SF375CX	3/8 (9.52)	iron constantan	1.19 (30.23)		0.19 (4.83)	6.67 (166.88)	See Figure 2
TSK6			chromel-alumel					
TSJ9	SF562CX	9/16 (14.28)	iron constantan	1.19 (30.23)		0.13 (3.30)	6.50 (165.10)	
TSK9			chromel-alumel					
TSJ12	SF750CX	3/4 (19.05)	iron constantan	2.00 (50.80)		0.50 (12.70)	6.88 (174.75)	
TSK12			chromel-alumel					
TSJ16	SF1000CX	1 (25.4)	iron constantan	2.62 (66.55)		0.57 (14.48)	6.94 (176.28)	
TSK16			chromel-alumel					
TSJ24	SF1500CX	1-1/2 (38.10)	iron constantan	3.25 (82.55)		.688 (17.48)	7.062 (179.38)	(See note below)
TSK24			chromel-alumel					

Series TC 60,000 psi (4137 bar)

TCJ4	F250C	1/4	iron constantan	0.38	0.50		5.88	See Figure 1
TCK4		(3.18)	chromel-alumel	(9.65)	(12.70)		(149.35)	
TCJ6	F375C	3/8	iron constantan	1.38		0.32	6.69	See Figure 2
TCK6		(9.52)	chromel-alumel	(35.05)		(8.13)	(169.93)	
TCJ9	F562C	9/16	iron constantan	1.62		0.25	6.62	
TCK9		(14.28)	chromel-alumel	(41.15)		(6.35)	(168.15)	

Note: All thermocouples are furnished complete with connection components unless otherwise specified.

Basic assembly includes 1/4" connection with adapters for other O.D. tube sizes.

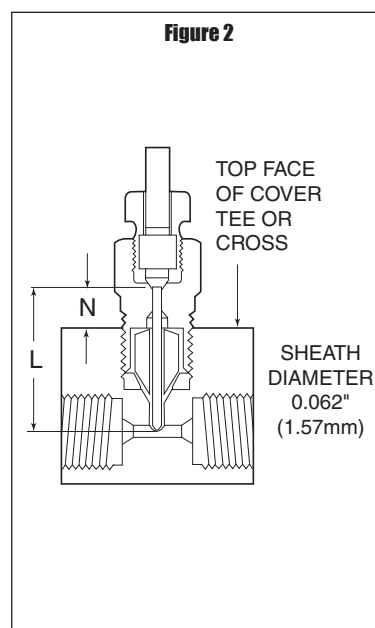
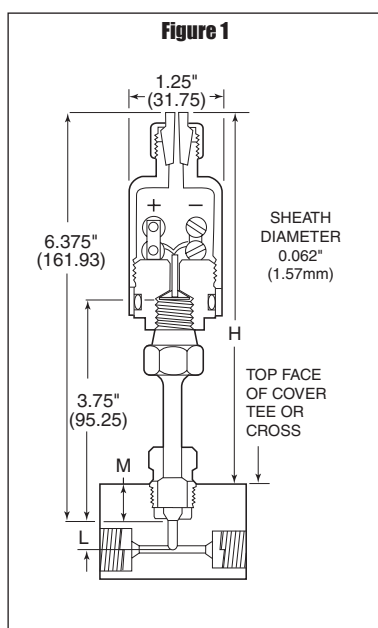
TSJ24 and TSK24 do not extend past the wall of the bore.

Maximum pressure rating is based on the lowest rating of any component.

Actual working pressure may be determined by tubing pressure rating, if lower.

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Note: The tee shown in both figures are for reference only. Tee is not included.

All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

Accessories - Thermowells

Pressures to 20,000 psi (1379 bar)

Thermowells are used to provide isolation between a temperature sensor and the environment, such as liquid or gas. Thermowells protect the sensor from pressure, corrosion, abrasion or vibration caused by the process medium. Thermowells allow the temperature sensor to be removed and replaced without compromising either the ambient region or the process.

Parker Autoclave Engineers manufactures thermowells from solid bar stock to accommodate applications in the petrochemical, chemical, refining, power and other process industries for many years.

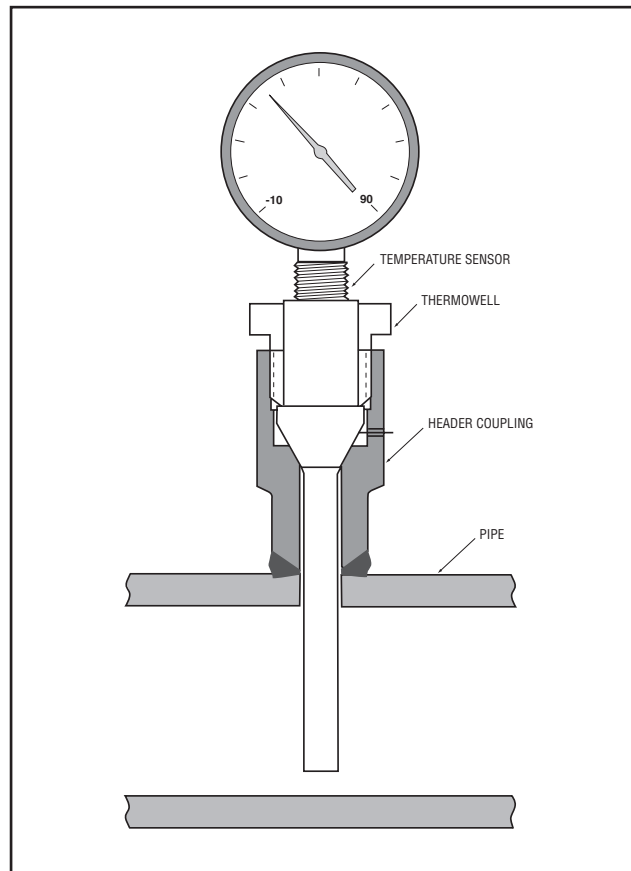
Parker Autoclave Engineers manufactures 316SS thermowells capable of connecting to a 1" (SF1000CX) Parker Autoclave Engineers female medium pressure connection.

Care must be taken in determining the material used for the thermowell as well as other factors. Parker Autoclave Engineers offers design assistance that includes pressure, temperature and vibration effect of the fluids. This vibration can cause well stem failure.

Standard and special thermowell materials available:

- 316 Stainless Steel
- Hastelloy
- Inconel
- Connection gland included

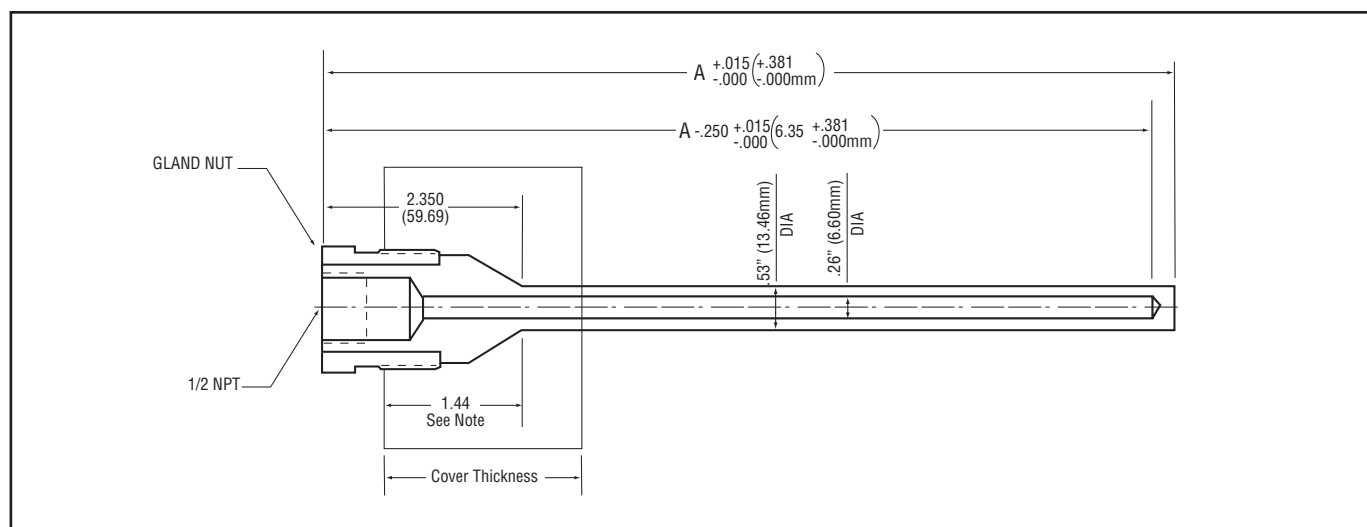
To order Parker Autoclave Engineers thermowell assemblies, please refer to our order guide to assist in determining your needs. Contact your local representative or the factory for technical assistance and application suggestions.



Typical Thermowell Assembly

Ordering Information

Catalog Number	Dimesion "A" in (mm)	Pressure Rating PSI (bar)
TW02.75	2.75 (70.68)	20,000 (1379)
TW03.12	3.12 (79.25)	20,000 (1379)
TW03.86	3.86 (98.04)	20,000 (1379)
TW04.25	4.25 (107.95)	20,000 (1379)
TW04.50	4.50 (114.30)	20,000 (1379)
TW05.50	5.50 (139.70)	20,000 (1379)
TW05.75	5.75 (146.05)	20,000 (1379)
TW06.25	6.25 (158.75)	20,000 (1379)
TW07.00	7.00 (177.80)	20,000 (1379)
TW07.50	7.50 (190.50)	20,000 (1379)
TW10.00	10.00 (254.00)	20,000 (1379)
TW12.00	12.00 (304.80)	20,000 (1379)



Note: Thermowells fit Autoclave's 1" medium pressure connection. (SF1000-CX). 1" connection insertion length is 1.44" (36.76).

Accessories - Universal Safety Heads

Pressures to 110,000 psi (7584 bar)

Safety Heads/Rupture Discs - Safety Heads and Rupture Discs offer an economical and dependable relief port to guard against system over-pressure.

Parker Autoclave Engineers offers universal safety heads in three series compatible in orifice size and maximum pressure rating with Parker Autoclave Low Pressure, Medium Pressure and High Pressure valves, fittings and tubing.

Parker Autoclave Engineers Low Pressure Series SS: Parker Autoclave SpeedBite Ermeto-type tube connection, maximum rupture pressures to 15,000 psi (1034 bar).

Parker Autoclave Engineers Medium Pressure Series CSX: Parker Autoclave Medium-Pressure coned-and-threaded tube connection, maximum rupture pressures to 20,000 psi (1379 bar).

Parker Autoclave Engineers High Pressure Series CS: Parker Autoclave High Pressure coned-and-threaded tube connection, maximum rupture pressure to 110,000 psi (7584 bar).

The 3/16F style features a 3/16" blow-out diameter and a flat seat which can be ordered in pressure range from 200 to 27,000 psi (13.8 to 1862 bar).

The 1/4A style features a 1/4" blow-out diameter and an angular seat which can be ordered in pressures from 900 to 110,000 psi (62 to 7584 bar).

The 1/2F style features a 1/2" blow-out diameter and a flat seat which can be ordered in pressures from 500 to 10,000 psi (35 to 690 bar).

ASME Safety Head - Parker Autoclave Engineers no longer offers ASME Section VIII Div. 3 Safety Head Assemblies. ASME has recently changed the code and we are no longer able to meet the new requirements.



Materials and Features

- Non-rotating double-cone plug design avoids galling and scoring of safety head or connection during installation. Reduces likelihood of leakage.
- Interchangeable hold-down rings permit use of several different sizes and types of rupture discs in a single safety head. Accommodates discs with rupture pressures as low as 90 psi (6.2 bar) and ranging to 60,000 psi (4137 bar) and above.
- Installs in any standard Parker Autoclave Engineers coupling, elbow, cross or tee.
- Cold-worked Type 316 SS body hold down gland and plug, all series.
- Hold down rings are corrosion resistant stainless steel.

Consult Local Sales Representative for safety head assemblies rated above 60,000 psi (4137 bar).

Ordering Information

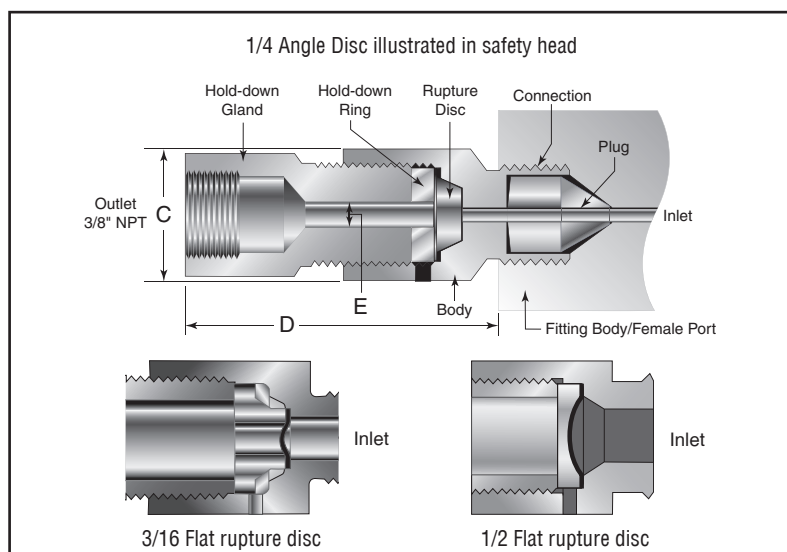
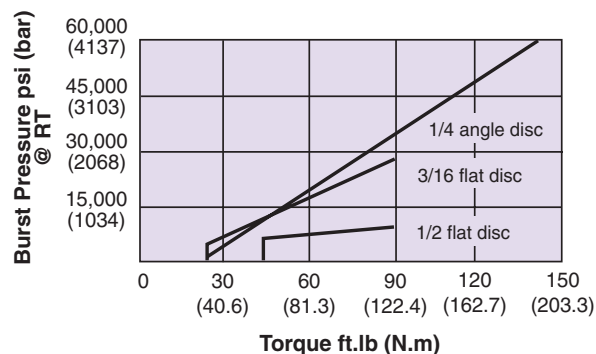
To order an Parker Autoclave Engineers Universal Safety Head, use the catalog order number from table. ADD THE SIZE OF THE RUPTURE DISC YOU WANT AS A SUFFIX TO THE CATALOG NUMBER; SUCH AS CS6600-1/4A. Then order desired rupture discs from rupture disc section. (This is important since the disc size determines which hold-down ring will be furnished with the safety head.) Note: Plug is included.

Hold-down nut torque values

Torque@ Minimum Pressure		Torque@ Maximum Pressure		Rupture Disc inches	Hold-down Ring Part Number
Ft. lb. (N.m)	psi (bar)	Ft. lb. (N.m)	psi (bar)		
20 (27.1)	5,000 (345)	90 (122.0)	26,500 (1827)	3/16 Flat*	112A-0439
40 (54.2)	4,000 (276)	90 (122.0)	10,000 (690)	1/2 Flat	1050-7434
20 (27.1)	4,000 (276)	140 (189.8)	60,000 (4137)	1/4 Angle	108A-0439

* 3/16 flat seat disc cannot be used with safety head assemblies SS6600, SS8600, 40CS9600 and CSX9600. Torque values for intermediate pressures may be linearly interpolated. Use minimum torque value for pressures lower than those shown.

Hold-down nut torque requirements vs. rupture disc burst pressure rating @ RT



Catalog Number Without Disc	Body Part Number	Plug Part Number	Hold-down Gland Part Number	Fits Connection Type	Fitting Pressure Rating psi (bar)	Body Torque Ft.lb. (N.m)	Plug Orifice inches (mm)	Body Orifice inches (mm)	Rupture Disc Size inches (mm)			Dimensions inches (mm)	
									3/16F Port E*	1/4A Port E*	1/2F Port E*	C	D

Low-Pressure

SS2600	2010-7035	101A-0434	3/16 & 1/2 Flat 1040-7434	W125	15,000 (1034.2)	15 (20.3)	0.094 (2.39)	0.125 (3.15)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.13 (53.96)
SS4600	2020-7035	102A-0434		SW250	15,000 (1034.2)	15 (20.3)	0.125 (3.18)	0.250 (6.35)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.13 (53.96)
SS6600	2030-7035	103A-0434		SW375	15,000 (1034.2)	15 (20.3)	0.250 (6.35)	0.375 (9.53)	NA	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.13 (53.96)
SS8600	2040-7035	104A-0434	1/4 Angle 1030-0241	SW500	10,000 (690.0)	20 (22.1)	0.375 (9.53)	0.375 (9.53)	NA	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.13 (53.96)

Port E* - Minimum disc blow-out diameter of hold down ring

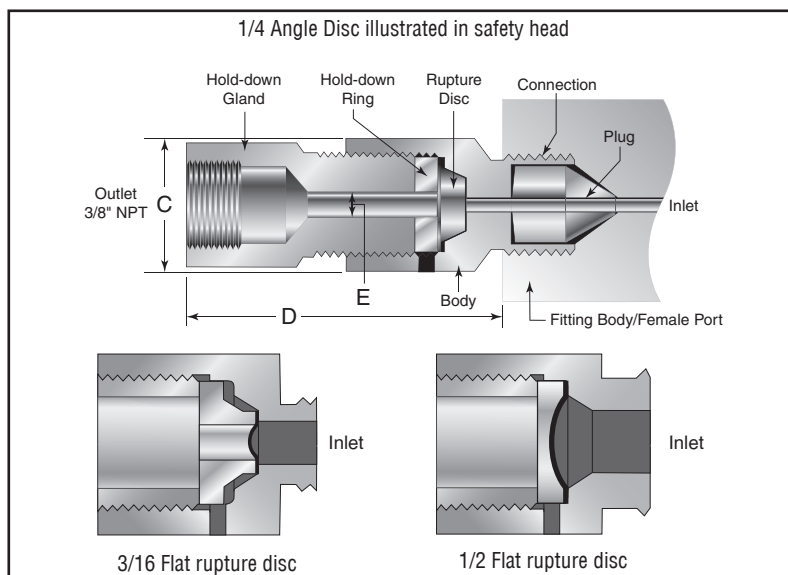
Note: Interchangeable hold-down rings permit use of several different sizes and types of rupture disc in a single safety head.

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Catalog Number Without Disc	Body Part Number	Plug Part Number	Hold-down Gland Part Number	Fits Connection Type	Fitting Pressure Rating psi (bar)	Body Torque Ft.lb. (N.m)	Plug Orifice inches (mm)	Body Orifice inches (mm)	Rupture Disc Size inches (mm)			Dimensions inches (mm)	
									3/16F Port E*	1/4A Port E*	1/2F Port E*	C	D

Medium-Pressure

CSX4600	101A-1731	2010-7823	3/16 & 1/2 Flat 1040-7434	SF250CX	20,000 (1378.9)	15 (20.3)	0.094 (2.39)	0.141 (3.58)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.19 (55.63)
CSX6600	102A-1731	2010-7844		SF375CX	20,000 (1378.9)	20 (27.1)	0.171 (4.34)	0.250 (6.35)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.19 (55.63)
CSX9600	101A-0438	102A-0438	1/4 Angle 1030-0241	SF562CX	20,000 (1378.9)	30 (40.6)	0.312 (7.92)	0.375 (9.53)	NA	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.19 (55.63)

High-Pressure

CS4600	2010-7036	1030-4877	3/16 & 1/2 Flat 1040-7434	F250C	60,000 (4136.8)	20 (27.1)	0.082 (2.08)	0.125 (3.18)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.25 (57.15)
CS6600	2020-7036	1030-6096		F375C	60,000 (4136.8)	40 (54.2)	0.125 (3.18)	0.219 (5.56)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.00 (25.4)	2.25 (57.15)
CS9600	2030-7036	1030-6097		F562C	60,000 (4136.8)	80 (108.5)	0.188 (4.78)	0.281 (7.13)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	1.19 (30.23)	2.25 (57.15)
40CS9600	2030-7036	101C-7192	1/4 Angle 1030-0241	F562C40	40,000 (2757.9)	80 (108.5)	0.250 (6.35)	0.281 (7.13)	NA	0.25 (6.35)	0.50 (12.7)	1.19 (30.23)	2.25 (57.15)

Pipe (NPT)

PS4600	101F-5292		1/4 Angle 1030-0241	1/4" NPT	15,000 (1034)			0.188 (4.78)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	0.81 (20.6)	1.31 (33.3)
PS8600	101F-4342		1/2 Flat 1040-7434	1/2" NPT	10,000 (690)			0.312 (7.92)	0.188 (4.78)	0.25 (6.35)	0.50 (12.7)	0.94 (23.90)	1.40 (35.6)

Port E* - Minimum disc blow-out diameter of hold down ring

Note: Interchangeable hold-down rings permit use of several different sizes and types of rupture disc in a single safety head.

Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

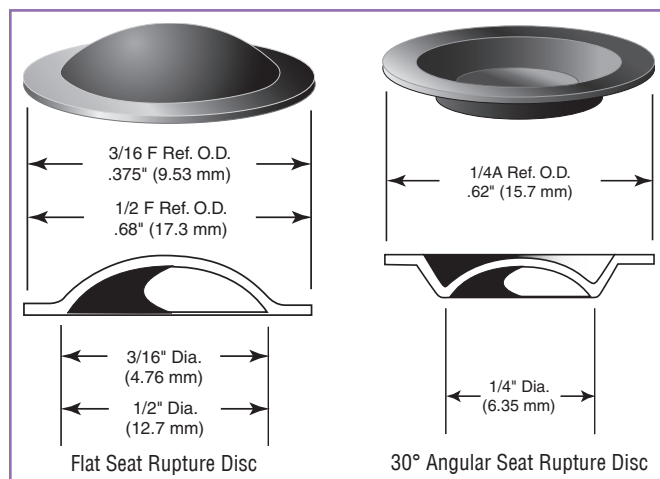
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Accessories - Prebulged Rupture Discs

Ordering Information

- Specify quantity, disc size, type, material and temperature.
- Indicate desired rupture rating which should be at least 110% of operating pressure. The burst rating tolerance is +/- 5% of the furnished tag rating. Discs are rated at 72°F (22°C).
- Special Rupture Disc Order: Special burst pressures can be ordered. The manufacturing tolerances is -5%. For example, if a 20,000 psi disc is requested the burst pressure on the disc tag can be from 20,000 to 19,000 psi. The stated tag pressure will have a burst tolerance of ±5%.
Order number example RD20000-5-1/4A
- Minimum order of 6 discs required for materials other than Inconel.
- See next page for standard part numbers.



Note: Inconel disc normally available from stock.

Disc Material	Disc Size Seat Type	Rupture Pressures Standard Available Range ± 5%	Maximum Temperature Rating
	Inches	psi (bar)	°F (°C)
Aluminum	3/16 flat	220 to 1,750 (15.2 to 120.7)	250 (121)
	1/4 angle	160 to 2,000 (11.0 to 137.9)	250 (121)
	1/2 flat	90 to 1,000 (6.2 to 68.9)	250 (121)
Silver	3/16 flat	500 to 4,500 (34.5 to 310.3)	250 (121)
	1/4 angle	360 to 6,000 (24.8 to 413.7)	250 (121)
	1/2 flat	190 to 1,700 (13.1 to 117.2)	250 (121)
Hastelloy C	3/16 flat	4,400 to 65,000 (303.4 to 4481.5)	1,000 (538)
	1/4 angle	3,300 to 70,000 (227.5 to 4826.3)	1,000 (538)
	1/2 flat	1,000 to 10,000 (68.9 to 690.0)	1,000 (538)
Nickel	3/16 flat	770 to 20,000 (53.1 to 1378.9)	750 (399)
	1/4 angle	550 to 35,000 (37.9 to 2413.1)	750 (399)
	1/2 flat	300 to 7,500 (20.7 to 517.1)	750 (399)
Monel	3/16 flat	2,650 to 20,000 (182.7 to 1378.9)	800 (427)
	1/4 angle	2,000 to 40,000 (137.9 to 2757.9)	800 (427)
	1/2 flat	1,000 to 7,500 (68.5 to 517.1)	800 (427)
Inconel 600 (Standard)	3/16 flat	200 to 2,700 (13.8 to 1861.6)	900 (482)
	1/4 angle	900 to 75,000 (62.1 to 5171.0)	900 (482)
	1/2 flat	500 to 10,000 (34.5 to 690.0)	900 (482)
Type 316 Stainless Steel	3/16 flat	1,750 to 20,000 (120.7 to 1378.9)	900 (482)
	1/4 angle	1,250 to 60,000 (86.2 to 4136.8)	900 (482)
	1/2 flat	700 to 10,000 (48.3 to 690.0)	900 (482)

PTFE coating available on one or both sides to increase minimum rupture rating.

CAUTION: High pressure-to-rupture ratios, severe pressure or temperature cycling, corrosion and metal fatigue affect disc life and rupture pressure. Frequent disc replacement may be desirable to avoid premature rupture. Rupture disc manufacturers recommend a 140 to 170 percent margin on disc ratings for extended disc life.

All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Rupture Disc Stock Part List - 3/16 Flat Disc

Part Number	Description	Material	Pressure Range (psi)	Pressure Range (bar)
P-7003	3/16F DISC	Inconel	1908-2120	131-146
P-7674	3/16F DISC	Inconel	2194-2438	151-168
P-7005	3/16F DISC	Inconel	2862-3180	197-219
P-7007	3/16F DISC	Inconel	3148-3498	217-241
P-7009	3/16F DISC	Inconel	3816-4240	263-292
P-7011	3/16F DISC	Inconel	4330-4700	292-324
P-7013	3/16F DISC	Inconel	4770-5300	329-365
P-7015	3/16F DISC	Inconel	5056-5618	348-387
P-7017	3/16F DISC	Inconel	5247-5830	362-402
P-7018	3/16F DISC	Inconel	5533-6148	382-424
P-7019	3/16F DISC	Inconel	5629-6254	388-431
P-7020	3/16F DISC	Inconel	5724-6360	395-439
P-7021	3/16F DISC	Inconel	5915-6572	408-453
P-7022	3/16F DISC	Inconel	6010-6678	414-460
P-7024	3/16F DISC	Inconel	6201-6890	428-475
P-7026	3/16F DISC	Inconel	6678-7420	461-512
P-7028	3/16F DISC	Inconel	7155-7950	493-548
P-7030	3/16F DISC	Inconel	7632-8480	527-585
P-7032	3/16F DISC	Inconel	8109-9010	559-621
P-7034	3/16F DISC	Inconel	8586-9540	592-658
P-7040	3/16F DISC	Inconel	10017-11130	690-767
P-7044	3/16F DISC	Inconel	10971-12190	756-840
P-7046	3/16F DISC	Inconel	11448-12720	789-877
P-7048	3/16F DISC	Inconel	11925-13250	823-914
P-7050	3/16F DISC	Inconel	12402-13780	855-950
P-7052	3/16F DISC	Inconel	12879-14310	888-987
P-7054	3/16F DISC	Inconel	13356-14840	921-1023
P-7056	3/16F DISC	Inconel	13833-15370	954-1060
P-7058	3/16F DISC	Inconel	14310-15900	986-1096
P-7060	3/16F DISC	Inconel	14787-16430	1020-1133
P-7062	3/16F DISC	Inconel	15264-16960	1052-1169
P-7064	3/16F DISC	Inconel	15741-17490	1085-1206
P-7068	3/16F DISC	Inconel	16695-18550	1151-1279
P-7072	3/16F DISC	Inconel	17649-19610	1217-1352
P-7074	3/16F DISC	Inconel	18126-20140	1250-1389
P-7080	3/16F DISC	Inconel	19557-21730	1348-1498
P-7082	3/16F DISC	Inconel	20034-22260	1382-1535
P-7084	3/16F DISC	Inconel	20511-22790	1414-1571
P-7086	3/16F DISC	Inconel	20988-23320	1447-1608
P-7088	3/16F DISC	Inconel	21465-23850	1480-1644
P-7094	3/16F DISC	Inconel	22896-25440	1579-1754
P-7096	3/16F DISC	Inconel	23850-26500	1644-1827
P-7098	3/16F DISC	Inconel	24327-27030	1676-1864

Rupture Disc Stock Part List - 1/4 Angle Disc

Part Number	Description	Material	Pressure Range (psi)	Pressure Range (bar)
P-7301	1/4A DISC	Inconel	954-1060	66-73
P-7303	1/4A DISC	Inconel	1145-1272	79-88
P-7305	1/4A DISC	Inconel	1431-1590	99-110
P-7307	1/4A DISC	Inconel	1670-1855	115-128
P-7309	1/4A DISC	Inconel	1908-2120	131-146
P-7311	1/4A DISC	Inconel	2385-2650	165-183
P-7313	1/4A DISC	Inconel	2862-3180	197-219
P-7315	1/4A DISC	Inconel	3339-3710	230-256
P-7317	1/4A DISC	Inconel	3816-4240	263-292
P-7319	1/4A DISC	Inconel	4293-4770	296-329
P-7321	1/4A DISC	Inconel	4770-5300	329-365
P-7323	1/4A DISC	Inconel	5247-5830	362-402
P-7325	1/4A DISC	Inconel	5724-6360	394-438
P-7327	1/4A DISC	Inconel	6201-6890	428-475
P-7329	1/4A DISC	Inconel	6678-7420	461-512
P-7331	1/4A DISC	Inconel	7155-7950	493-548
P-7333	1/4A DISC	Inconel	7632-8480	527-585
P-7335	1/4A DISC	Inconel	8109-9010	559-621
P-7337	1/4A DISC	Inconel	8586-9540	592-658
P-7339	1/4A DISC	Inconel	9063-10070	625-694
P-7341	1/4A DISC	Inconel	9540-10600	658-731
P-7343	1/4A DISC	Inconel	10017-11130	690-767
P-7345	1/4A DISC	Inconel	10494-11660	724-804
P-7347	1/4A DISC	Inconel	10971-12190	757-841
P-7349	1/4A DISC	Inconel	11448-12720	789-877
P-7351	1/4A DISC	Inconel	11925-13250	823-914
P-7353	1/4A DISC	Inconel	12402-13780	855-950
P-7355	1/4A DISC	Inconel	12879-14310	888-987
P-7357	1/4A DISC	Inconel	13356-14840	921-1023
P-7361	1/4A DISC	Inconel	14310-15900	986-1096
P-7363	1/4A DISC	Inconel	14787-16430	1020-1133
P-7365	1/4A DISC	Inconel	15264-16960	1052-1169
P-7367	1/4A DISC	Inconel	15741-17490	1085-1206
P-7369	1/4A DISC	Inconel	16218-18020	1118-1242
P-7371	1/4A DISC	Inconel	16695-18550	1151-1279
P-7373	1/4A DISC	Inconel	17172-19080	1184-1315
P-7375	1/4A DISC	Inconel	17649-19610	1217-1352
P-7377	1/4A DISC	Inconel	18603-20670	1283-1425
P-7379	1/4A DISC	Inconel	19080-21200	1316-1462
P-7381	1/4A DISC	Inconel	19557-21730	1348-1498
P-7382	1/4A DISC	Inconel	19800-22000	1365-1517
P-7383	1/4A DISC	Inconel	21465-23850	1480-1644
P-7385	1/4A DISC	Inconel	23850-26500	1644-1827

Rupture Disc Stock Part List - 1/4 Angle Disc - con't

Part Number	Description	Material	Pressure Range (psi)	Pressure Range (bar)
P-7387	1/4A DISC	Inconel	24804-27560	1710-1900
P-7389	1/4A DISC	Inconel	25758-28620	1776-1973
P-7391	1/4A DISC	Inconel	26712-29680	1841-2046
P-7393	1/4A DISC	Inconel	28620-31800	1973-2192
P-7395	1/4A DISC	Inconel	29574-32860	2039-2266
P-7397	1/4A DISC	Inconel	31005-34450	2138-2375
P-7399	1/4A DISC	Inconel	33390-37100	2302-2558
P-7401	1/4A DISC	Inconel	35775-39750	2467-2741
P-7403	1/4A DISC	Inconel	38160-42400	2631-2923
P-7405	1/4A DISC	Inconel	40545-45050	2795-3106
P-7407	1/4A DISC	Inconel	42930-47700	2960-3289
P-7409	1/4A DISC	Inconel	47700-53000	3289-3654
P-7411	1/4A DISC	Inconel	52470-58300	3618-4020
P-7413	1/4A DISC	Inconel	57240-63600	3947-4385
P-7415	1/4A DISC	Inconel	59400-66000	4095-4550
P-7417	1/4A DISC	Inconel	64872-72080	4473-4970
P-7419	1/4A DISC	Inconel	67734-75260	4670-5189

Rupture Disc Stock Part List - 1/2 Flat Disc

Part Number	Description	Material	Pressure Range (psi)	Pressure Range (bar)
P-7601	1/2F DISC	Inconel	477-530	33-37
P-7603	1/2F DISC	Inconel	668-742	46-51
P-7605	1/2F DISC	Inconel	716-795	50-55
P-7607	1/2F DISC	Inconel	859-954	66-73
P-7609	1/2F DISC	Inconel	954-1060	68-75
P-7610	1/2F DISC	Inconel	990-1100	68-76
P-7611	1/2F DISC	Inconel	1145-1272	79-88
P-7613	1/2F DISC	Inconel	1191-1323	82-91
P-7615	1/2F DISC	Inconel	1336-1484	92-102
P-7617	1/2F DISC	Inconel	1431-1590	99-110
P-7619	1/2F DISC	Inconel	1526-1696	105-117
P-7621	1/2F DISC	Inconel	1670-1855	115-128
P-7623	1/2F DISC	Inconel	1717-1908	119-132
P-7625	1/2F DISC	Inconel	1908-2120	131-146
P-7627	1/2F DISC	Inconel	2147-2385	148-164
P-7629	1/2F DISC	Inconel	2194-2438	151-168
P-7631	1/2F DISC	Inconel	2385-2650	165-183
P-7633	1/2F DISC	Inconel	2576-2862	177-197
P-7635	1/2F DISC	Inconel	2671-2968	184-204
P-7637	1/2F DISC	Inconel	2862-3180	197-219
P-7639	1/2F DISC	Inconel	3053-3392	211-234
P-7641	1/2F DISC	Inconel	3339-3710	230-256
P-7643	1/2F DISC	Inconel	3530-3922	243-270
P-7645	1/2F DISC	Inconel	3578-3975	247-274
P-7647	1/2F DISC	Inconel	3816-4240	263-292
P-7649	1/2F DISC	Inconel	4293-4770	296-329
P-7651	1/2F DISC	Inconel	4388-4876	302-336
P-7653	1/2F DISC	Inconel	4770-5300	329-365
P-7655	1/2F DISC	Inconel	5247-5830	362-402
P-7657	1/2F DISC	Inconel	5533-6148	382-424
P-7659	1/2F DISC	Inconel	5724-6360	394-438
P-7661	1/2F DISC	Inconel	6201-6890	428-475
P-7663	1/2F DISC	Inconel	6678-7420	461-512
P-7665	1/2F DISC	Inconel	7155-7950	493-548
P-7667	1/2F DISC	Inconel	7632-8480	527-585
P-7669	1/2F DISC	Inconel	8109-9010	559-621
P-7671	1/2F DISC	Inconel	8586-9540	592-658
P-7673	1/2F DISC	Inconel	9540-10600	658-731

Accessories - Instrument Quality Pressure Gauges

Pressures up to 150,000 psi (10342 bar)

Gauges - Pressure gauges are offered for use in low, medium and high pressure systems to pressures up to 80,000 psi (5515 bar).

Low, Medium and High Pressure System Gauges

Materials and Features

- Gauges are dual scale psi and bar
- Accuracy within $\pm 0.5\%$ of full scale range
- 1/4" F250C Autoclave high pressure connection
- Plastic dial cover/solid front aluminum alloy case
- Blow-out back panel for pressure relief in the event of Bourdon tube failure
- 316 Stainless steel Bourdon tubes**
- Gauges available with bottom and back connections
- Precision stainless steel movement for accuracy and resistance to atmospheric corrosion
- Pointer zero adjustment located on front of gauge behind dial cover for convenience
- Gauges are commercially cleaned when shipped
- Gauges up to 10,000 psi (690 bar) oxygen cleaned upon request
- Standard gauges are rated from -20°F (-30°C) to 150°F (65°C)
- Calibration report available on special orders only



Instrument quality gauges

- **Flush panel mounting** - Panel mounting kits are stocked to permit flush panel mounting of any instrument quality gauge. These will be furnished at an additional charge when specified - add "PM" to order number.
To order gauge panel mount kit separate:
P-8559 4.5" Flush mount
P-8560 6.0" Flush mount
- **Optional electrical contact face** - Available for all instrument quality gauges. With adjustable low and high electrical contacts, this option permits gauges to provide pressure control for automatic or remote operation, or for fail-safe set points.

* Bourdon tube material for 0-30,000 psi (0-2068 bar) gauge is K Monel. Bourdon tube material for 0-50,000 psi (0-3447 bar) and 0-80,000 psi (0-5116 bar) gauge is Inconel 718.



Note: Gauge connections are 1/4" (F250C) coned-and-threaded connection. Furnished with collar and gland.

Bottom Connection

Catalog Number	Pressure Range psi (bar)	Minor Interval Value psi (bar)	Dial Diameter inches (mm)
P-0499-CG	0-1,000 (0-69)	10 (.69)	4-1/2 (114.3)
P-0479-CG	0-1,500 (0-103)	10 (.69)	4-1/2 (114.3)
P-0480-CG	0-3,000 (0-207)	20 (1.38)	4-1/2 (114.3)
P-0481-CG	0-5,000 (0-345)	50 (3.44)	4-1/2 (114.3)
P-0482-CG	0-10,000 (0-690)	100 (6.89)	4-1/2 (114.3)
P-0483-CG	0-15,000 (0-1034)	100 (6.89)	4-1/2 (114.3)
P-0487-CG	0-20,000 (0-1379)	200 (13.79)	4-1/2 (114.3)
P-0488-CG**	0-30,000 (0-2068)	250 (17.24)	6 (152.4)
P-0489-CG**	0-50,000 (0-3447)	500 (34.47)	6 (152.4)
P-0490-CG**	0-80,000 (0-5515)	1,000 (68.94)	6 (152.4)

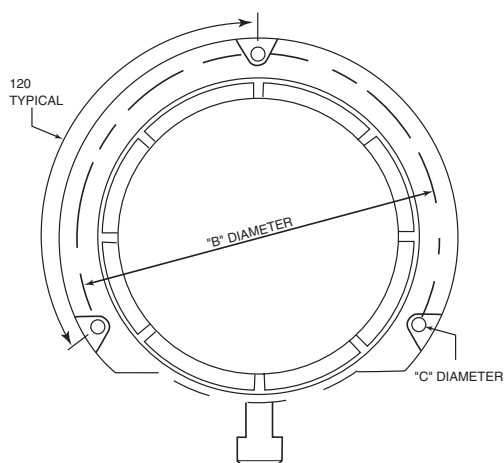
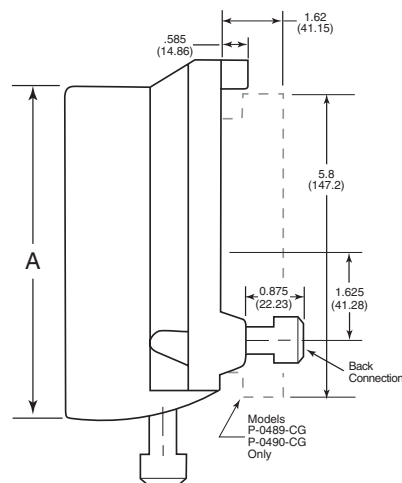
Back Connection Gauges

Catalog Number	Pressure Range psi (bar)	Minor Interval Value psi (bar)	Dial Diameter inches (mm)
P-0482B-CG	0-10,000 (0-690)	100 (6.89)	4-1/2 (114.3)
P-0483B-CG	0-15,000 (0-1034)	100 (6.89)	4-1/2 (114.3)
P-0487B-CG	0-20,000 (0-1379)	200 (13.79)	4-1/2 (114.3)
P-0488B-CG	0-30,000 (0-2068)	250 (17.24)	6 (152.4)
P-0489B-CG	0-50,000 (0-3447)	500 (34.47)	6 (152.4)

Optional Electrical Contact Face

Catalog Number	Fits Gauge Dial Diameter inches - (mm)
P-0713	4-1/2 (114.3)
P-0714	6 (152.4)

** Bourdon tube material for 0-30,000 psi (0-2068 bar) gauge is K Monel. Bourdon tube material for 0-50,000 psi (0-3447 bar) and 0-80,000 psi (0-5515 bar) gauge is Inconel 718.



Panel Mount Layout

Gauge Size inches - (mm)	"A" cutout inches - (mm)	"B" inches - (mm)	"C" inches - (mm)
4-1/2" (114.3)	4.937 (125.39)	5.375 (136.52)	.218 (5.54)
6" (152.4)	6.437 (163.49)	7.0 (177.80)	.218 (5.54)

Accessories - Gauge/Instrument Snubbers

Pressures to 100,000 psi (6895 bar)

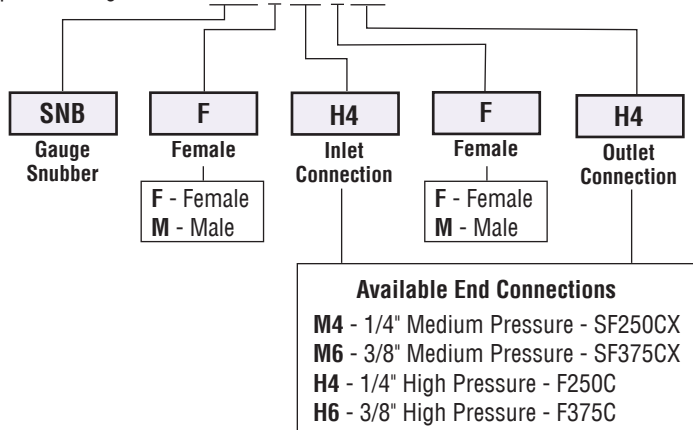
Parker Autoclave Engineers Pressure Snubbers provide protection to gauges and instrumentation from pressure surges, pulsation and shock. The unique snubber design provides superior instrument protection while not compromising instrument accuracy or reaction time. This is accomplished by the use of existing technology from our excess flow check valve with additional design features.

When sudden flow is seen, the poppet will rise, blocking the pressure surge and a small bleed hole in the poppet will allow pressure to slowly equalize. When the pressure is equalized, the poppet will then drop back down allowing normal flow to the gauge. A 5 micron filter is used to prevent the hole in the plug from becoming plugged. **The snubber must be mounted in the vertical position as indicated on the unit.**

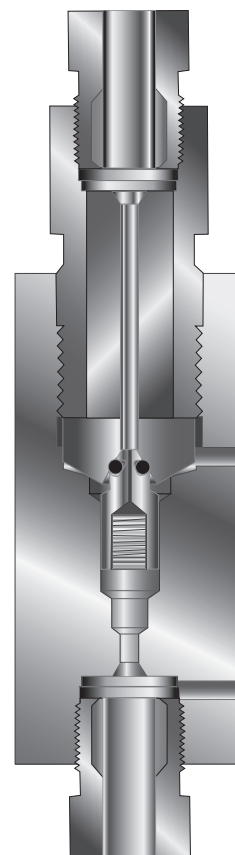
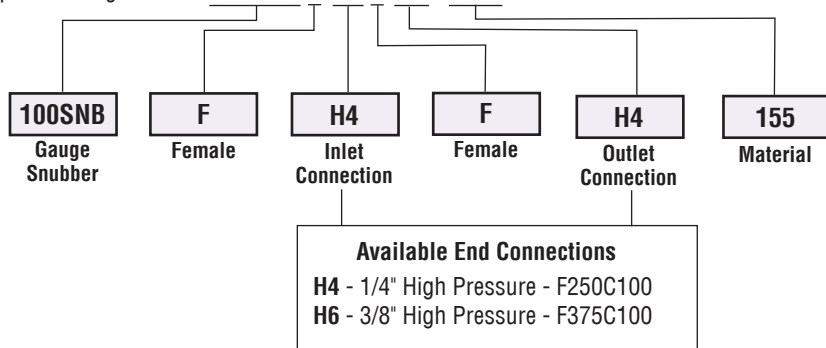
Snubbers are offered in 316SS as standard, with either male, female or male/female connections in 1/4" and 3/8" sizes. Optional materials available upon request.

O-ring is Viton rated 450°F (232°C) maximum.

Typical catalog number: **SNB F H4 F H4**



Typical catalog number: **100SNB F H4 F H4 - 155**



INLET

See next page for available models.

Accessories - Gauge/Instrument Snubbers

Catalog Number	Pressure Rating psi (bar)	Dimensions – Inches (mm)					Fig
		A	B	C	D	Hex	
SNBFH4FH4	60,000 (4137)	3.36 (85.34)	2.50 (63.50)	0.50 (12.70)	0.63 (15.33)	1.19 (30.22)	1
SNBFH6FH6	60,000 (4137)	3.81 (96.77)	2.75 (69.85)	0.52 (13.21)	0.75 (19.05)	1.19 (30.22)	1
SNBFM4FM4	20,000 (1379)	2.77 (70.36)	2.38 (60.45)	0.38 (9.65)	0.50 (12.70)	0.81 (20.57)	1
SNBFH4MH4	60,000 (4137)	4.05 (102.87)	2.50 (63.50)	0.50 (12.70)	0.63 (15.33)	1.19 (30.22)	2
SNBMH6MH4	60,000 (4137)	3.68 (93.47)	2.13 (54.10)	1.50 (38.10)	0.75 (19.05)	1.19 (30.22)	3
100SNBFH6FH6-155	100,000 (6895)	4.65 (118.11)	3.50 (88.90)	0.52 (13.21)	0.75 (19.05)	1.75 (44.45)*	1

* Across flats. Diameter 2.00

Figure 1

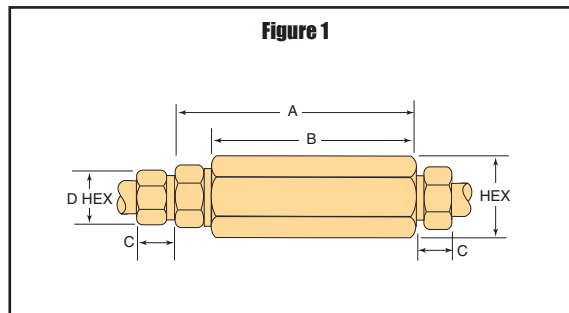


Figure 2

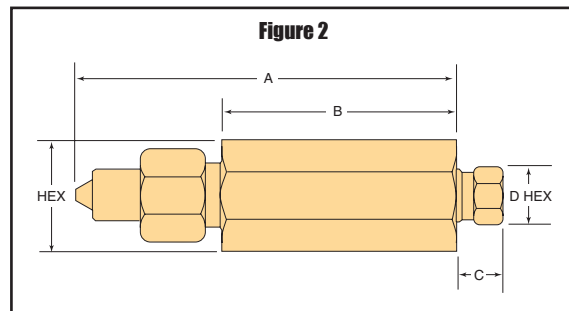
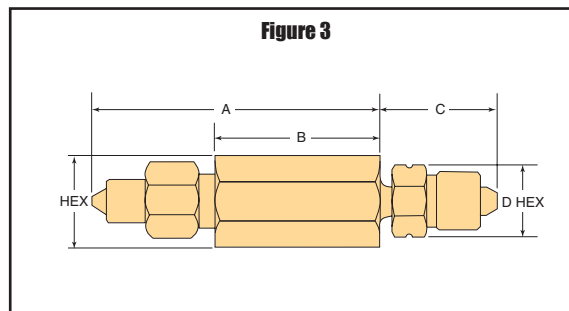


Figure 3



WARNING

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).



Instrumentation Products Division
Autoclave Engineers Operation
8325 Hessinger Drive
Erie, Pennsylvania 16509-4679 USA
PH: 814-860-5700 FAX: 814-860-5811
www.autoclave.com

Parker Hannifin Manufacturing Ltd.
Instrumentation Products Division, Europe
Industrial Estate Whitemill
Wexford, Republic of Ireland
PH: 353 53 914 1566
FAX: 353 53 914 1582

Caution! Do not mix or interchange parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

ISO-9001 Certified